What is claimed is:

1. An apparatus for combinatorial chemistry on a substrate comprising:

a manifold having one or more outlets positioned to deliver one or more chemicals to the substrate; and

a linear drive for moving the substrate below the manifold.

2. The apparatus of claim 1, wherein the manifold is defined further as comprising one or more outlets that form linear delivery spray heads.

3. The apparatus of claim 1, wherein the manifold delivers one or more chemicals for nucleic acid synthesis to the substrate.

4. The apparatus of claim 1, wherein the manifold delivers one or more chemicals for peptide synthesis.

5. The apparatus of claim 1, wherein the manifold delivers one or more chemicals for nucleic acid synthesis.

6. The apparatus of claim 1, wherein the manifold delivers one or more chemicals for oligomer synthesis.

7. The apparatus of claim 1, wherein the manifold is further defined as one or more manifolds comprising:

an acetonitrile manifold;

an oxidizer manifold;

a capping reagent manifold;

one or more monomer manifolds; and

a deblock manifold.

8. The apparatus of claim 1, further comprising a mask containing one or more holes positioned between the manifold and the substrate.

9. The apparatus of claim 1, wherein the substrate comprises a chemically nonreactive material.

10. The apparatus of claim 1, wherein the substrate comprises Delrin.

11. The apparatus of claim 1, wherein the substrate comprises Polyethylene.

12. The apparatus of claim 1, wherein the substrate comprises Fiberglass.

13. The apparatus of claim 1, wherein the substrate comprises Glass Micro-fiber filter (GMFF).

14. The apparatus of claim 1, wherein the substrate comprises a material coated with a chemically non-reactive coating.

15. The apparatus of claim 1, wherein the substrate comprises a top surface and wherein the top surface is slanted.

16. The apparatus of claim 1, wherein the substrate comprises one or more wells.

17. The apparatus of claim 1, wherein the substrate comprises a multi-well plate.

18. The apparatus of claim 1, wherein the substrate comprises a multi-well filter plate.

19. The apparatus of claim 16, wherein the one or more wells of the plate further comprise a slanted interior edge.

20. The apparatus of claim 16, wherein the plate is further define as a multi-well filter plate and comprises:

a top and a bottom plate containing one or more wells; and

a semi-permeable membrane positioned between the top and bottom plates.

21. The apparatus of claim 16, wherein the wells comprise a slanted cross-section.

22. The apparatus of claim 16, wherein the wells comprise a slanted cross-section and a frit.

23. The apparatus of claim 16, wherein the wells comprise first and second slanted portions.

24. The apparatus of claim 16, wherein the wells comprise first and second slanted portion, and wherein at least one frit is fixed within the first or second slanted portion of the well.

25. The apparatus as in claim 16, wherein each of the one or more wells further comprise a synthesis substrate.

26. The apparatus of claim 1, further comprising a computer connected to and controlling the linear drive.

27. The apparatus of claim 1, further comprising one or more chemical reservoirs in fluid communication with one or more manifolds.

28. The apparatus of claim 1, further comprising a computer connected to and controlling one or more valves that control the flow of fluid between the one or more chemical reservoirs with the one or more manifolds.

29. The apparatus of claim 1, further comprising:

one or more chemical reservoirs in fluid communication with the one or more manifolds; and

one or more valves control the flow of fluid from the chemical reservoirs to the one or more manifolds.

30. The apparatus of claim 1, further comprising a mask positioned between the manifold and the substrate.

31. The apparatus of claim 30, wherein the mask positioned between the manifold and the substrate is layered on the substrate.

32. The apparatus of claim 30, wherein a mask is positioned further comprises one or more through-holes generally over one or more reaction sites of the substrate.

33. The apparatus of claim 30, wherein the mask comprises Teflon™.

34. The apparatus of claim 30, wherein the mask comprises Teflon™ between 0.002 and 0.25 inches thick.

35. The apparatus of claim 30, wherein the mask comprises polyethylene.

36. The apparatus of claim 30, wherein the mask comprises fiberglass.

37. The apparatus of claim 30, wherein the mask comprises Delrin.

38. The apparatus of claim 30, wherein the mask comprises polypropylene.

39. The apparatus of claim 30, wherein the mask comprises single-sided Teflon™ tape.

40. The apparatus of claim 30, wherein the mask comprises molded polypropylene and further comprising divots that generally match one or more wells of a substrate.

41. The apparatus of claim 30, wherein the mask comprises molded polyethylene and further comprising divots that generally match one or more wells of a substrate.

42. The apparatus of claim 30, wherein the mask comprises a magnetically attractive material.

43. The apparatus of claim 30, wherein the mask comprises an electrostatic charge opposite an electrostatic charge on the substrate.

44. The apparatus of claim 1, further comprising a vacuum in communication with the substrate.

45. The apparatus as in claim 1, wherein the substrate comprises one or more reactive group protected from a chemical reaction by one or more removable protecting groups.

46. The apparatus of claim 45, wherein the one or more removable protecting groups is removed by addition of a deblocking reagent.

47. The apparatus of claim 45, wherein the substrate comprises one or more monomers for nucleic acid synthesis.

48. The apparatus of claim 45, wherein the substrate comprises one or more monomers for peptide synthesis.

49. The apparatus of claim 45, wherein the substrate comprises one or more monomers for peptide nucleic acid synthesis.

50. The apparatus of claim 45, wherein the substrate comprises one or more monomers for carbohydrate synthesis.

51. The apparatus of claim 45, wherein the substrate further comprises a linker.

52. The apparatus of claim 45, wherein the substrate comprises a small molecule library.

53. The apparatus of claim 1, wherein the substrate comprises 6, 12, 48, 96, 384, 864, 1,536 or more reaction sites.

54. The apparatus of claim 1, wherein the substrate is rectangular.

55. The apparatus as in claim 1, wherein substrate comprises one or more wells, and the one or more wells are canted.

56. An apparatus for combinatorial chemistry comprising:

a substrate comprising one or more reaction sites;

a mask positioned on the substrate;

a one or more manifolds positioned to deliver one or more chemicals to at least a portion of the substrate; and

a linear drive for moving the substrate and the mask below the one or more linear manifolds.

57. An apparatus for combinatorial chemistry comprising:

a substrate comprising one or more reaction sites;

a mask comprising one or more through holes positioned generally over the one or more reaction sites of the substrate;

a one or more linear manifolds positioned to deliver one or more chemicals to the substrate;

a linear drive for moving the substrate and the mask below the one or more linear manifolds; and

a vacuum below the one or more reaction sites of the substrate.

58. An apparatus for synthesizing oligomers comprising:

a substrate comprising one or more reaction sites;

a mask comprising one or more through holes positioned generally over the one or more reaction sites of the substrate;

one or more linear manifolds positioned to deliver one or more chemicals to the substrate comprising:

an acetonitrile manifold;

an oxidizer manifold;

a capping reagent manifold;

one or more monomer manifold; and

a deblock manifold;

a linear motion table that moves the substrate and the mask below the one or more manifolds; and

a vacuum below the one or more reaction sites of the substrate.

59. A method for controlling a chemical reaction in one or more reaction sites protected by a mask comprising the steps of:

positioning a mask comprising one or more wells over a substrate comprising one or more reaction sites;

flooding a deblock reagent over the surface of the mask, wherein the deblock reagent will only enter unmasked reaction sites;

removing the mask;

flooding a mix of activator and one reactive monomer into all reaction sites;

flooding a mix of cap A and B reagents into all reaction sites;

flooding and oxidizing reagent into all reaction sites; and

repeating the above steps for the other reactive monomers.

60. A method for controlling a chemical reaction in one or more reaction sites protected by a mask comprising the steps of:

(a) flooding a deblock reagent into all the reaction sites of a substrate;

(b) positioning a monomer-specific mask for a specific monomer over a substrate;

(c) flood a specific monomer and activator over the substrate, wherein only those reaction sites with open holes in the mask will receive one or more specific monomers;

(d) removing the mask; and

(e) repeating steps (b) through (d) for each specific monomer;

(f) flooding a mix of cap A and B reagents into all reaction sites; and

(g) flooding an oxidizing reagent into all reaction sites.

61. A mask for chemical synthesis comprising:

a non-reactive sheet having a top and a bottom surface;

one or more through-holes that form an array that generally match the position of one or more wells of a substrate.

62. The mask of claim 61, wherein the substrate comprises a multi-well plate.

63. The mask of claim 61, wherein the substrate comprises a multi-well filter plate.

64. The mask of claim 61, wherein the mask comprises a substantially chemically non-reactive material.

65. The mask of claim 61, wherein the mask comprises a Teflon™-coated polymer.

66. The mask of claim 61, wherein the mask comprises polyethylene.

67. The mask of claim 61, wherein the mask comprises fiberglass.

68. The mask of claim 61, wherein the mask comprises Delrin.

69. The mask of claim 61, wherein the mask comprises polypropylene.

70. The mask of claim 61, wherein the through-holes are further defined as having one or more nozzles on the bottom surface.

71. The mask of claim 70, wherein the through-holes are further defined as having one or more nozzles on the bottom surface, wherein the nozzles have an angle that matches the angle of the wells in the multi-well plate.

72. The mask of claim 70, wherein the through-holes are further defined as having one or more nozzles on the bottom surface, wherein the nozzles have an angle that is more than the angle of the wells in the multi-well plate.

73. The mask of claim 70, wherein the through-holes are further defined as having one or more nozzles on the bottom surface, wherein the nozzles have an angle that is less than the angle of the wells in the multi-well plate.

74. A method of determining synthetic order of monomer addition comprising the steps of:

determining the synthesis order for the addition of a specific monomer;

deciding whether a mask is to be positioned on a substrate;

moving the substrate to a preselected position for chemical addition;

adding a specific monomer;

washing the substrate; and

repeating the above steps if another monomer is to be added.

75. The method of claim 74, wherein the step of catalyzing the addition of a monomer is defined further as comprising the steps of:

performing a deblock step;

putting on a mask to protect sites in which a monomer will not be added;

delivering one or more monomers;

performing a capping steps and performing an oxidizer step.

76. A method for producing polymers comprising the steps of:

placing a reactive compound on one or more reaction sites of a substrate;

protecting one or more reaction sites of a substrate with a mask; and

controlling a chemical reaction in the one or more reaction sites not protected by the mask.

77. The method of claim 76, wherein the step of controlling a reaction is defined further as not deblocking the reactive compound .

78. The method of claim 76, wherein the step of controlling a chemical reaction comprises the steps of:

flooding a deblocking reagent over the surface of the mask;

flooding a coupling reagent over the surface of the mask, wherein the coupling reagent comprises one or more reactive compounds;

flooding a capping reagent over the surface of the mask; and

flooding oxidizing reagent over the surface of the mask.

79. The method of claim 76, wherein the one or more reactive compounds are defined further as phosphoramidite comprising compounds.

80. The method of claim 76, wherein phosphoramidite comprising compounds include one or more protected phosphoramidite nucleic acid bases A, G, C, T, U or derivatives thereof.

81. The method of claim 76, wherein chemical reaction is the addition of one or more monomers for carbohydrate synthesis.

82. The method of claim 76, wherein chemical reaction is the addition of one or more monomers for nucleic acid synthesis.

83. The method of claim 76, wherein chemical reaction is the addition of one or more monomers for peptide synthesis.

84. The method of claim 76, wherein the capping agent further comprises a cap A and a cap B reagent and wherein they acetylate unreacted termini.

85. A method of determining the mask pattern for monomer addition comprising the steps of:

reading the sequence of one or more monomer sequences;

setting up an array that contains all the possible permutations of the monomers wherein each of these permutations having a first and a second element, wherein the first element records the number of cycles required to complete synthesis and the second element records the number of monomers to be deblocked;

selecting a variable number that equals the total number of required monomers types;

selecting a second variable that contains the total number of wells; and

testing the array for the minimum number of masks that are required to complete all the monomer additions; and

selecting the array that contains the minimum number of masks.

86. The method of claim 85, further comprising the step of pre-determining areas with sequences in common within the sequences of the one of more monomers and preparing masks for those areas of with sequences in common independent from the determination of the array.